Claims

1. A method of reducing the concentration of sulfur and/or a sulfur-containing compound in a biochemically prepared organic compound, which comprises bringing the respective organic compound into contact with an adsorbent.

2. The method according to claim 1 for reducing the concentration of sulfur and/or a sulfur-containing compound in a compound prepared by fermentation.

3. The method according to claim 1 or 2 for reducing the concentration of C_{2-10}-dialkyl sulfides, C_{2-10}-dialkyl sulfoxides, 3-methylthio-1-propanol and/or S-containing amino acids.

4. The method according to claim 1 or 2 for reducing the concentration of dimethyl sulfide.

5. The method according to any of the preceding claims, wherein the biochemically prepared organic compound is an alcohol, ether or a carboxylic acid.

6. The method according to any of claims 1 to 5, wherein the biochemically prepared organic compound is ethanol, 1,3-propanediol, 1,4-butanediol, 1-butanol, glycerol, tetrahydrofuran, lactic acid, succinic acid, malonic acid, citric acid, acetic acid, propionic acid, 3-hydroxypropionic acid, butyric acid, formic acid or gluconic acid.

7. The method according to any of the preceding claims, wherein the adsorbent is a silica gel, an aluminum oxide, a zeolite, an activated carbon or a carbon molecular sieve.

8. The method according to the preceding claim, wherein the zeolite is a zeolite from the group consisting of natural zeolites, faujasite, X-zeolite, Y-zeolite, A-zeolite, L-zeolite, ZSM 5 zeolite, ZSM 8 zeolite, ZSM 11 zeolite, ZSM 12 zeolite, mordenite, beta-zeolite, pentasil zeolite, Metal Organic Frameworks (MOF) and mixtures thereof which contain ion-exchangeable cations.

9. The method according to either of the two preceding claims, wherein the zeolite has a molar SiO_2/Al_2O_3 ratio in the range from 2 to 100.

10. The method according to any of the three preceding claims, wherein cations of the zeolite have been completely or partly replaced by metal cations.

11. The method according to any of the preceding claims, wherein the adsorbent comprises one or more transition metals, in elemental or cationic form, from groups VIII and/or IB of the Periodic Table.

12. The method according to the preceding claim, wherein the adsorbent comprises silver and/or copper.

13. The method according to any of the three preceding claims, wherein the adsorbent comprises from 0.1 to 75% by weight of the metal or metals.

14. The method according to any of the preceding claims, wherein the biochemically prepared organic compound is brought into contact with the adsorbent at a temperature in the range from 10 to 200°C.

15. The method according to any of the preceding claims, wherein the biochemically prepared organic compound is brought into contact with the adsorbent at an absolute pressure in the range from 1 to 200 bar.

16. The method according to any of the preceding claims for reducing the concentration of sulfur and/or sulfur-containing compounds by ≥ 90% by weight (calculated as S).

17. The method according to any of claims 1 to 15 for reducing the concentration of sulfur and/or sulfur-containing compounds by ≥ 95% by weight (calculated as S).

18. The method according to any of claims 1 to 15 for reducing the concentration of sulfur and/or sulfur-containing compounds by ≥ 98% by weight (calculated as S).

19. The method according to any of the preceding claims for reducing the concentration of sulfur and/or sulfur-containing compounds to < 2 ppm by weight (calculated as S).

20. The method according to any of claims 1 to 18 for reducing the concentration of sulfur and/or sulfur-containing compounds to < 1 ppm by weight (calculated as S).

21. The method according to any of claims 1 to 18 for reducing the concentration of sulfur and/or sulfur-containing compounds to < 0.1 ppm by weight (calculated as S).

22. The method according to any of the preceding claims carried out in the absence of hydrogen.

23. The method according to any of the preceding claims, wherein the respective organic compound is brought into contact with the adsorbent in the liquid phase.

24. The use of ethanol which has been obtained by a method according to any of the preceding claims as solvent, disinfectant, as component in pharmaceutical or cosmetic products or in foodstuffs or in cleaners, as feed in steam reforming processes for the synthesis of hydrogen or in fuel cells or as building block in chemical synthesis.

25. Ethanol which can be prepared by a method according to any of claims 1 to 23 and has
a content of sulfur and/or sulfur-containing organic compounds in the range from 0 to 2 ppm by weight (calculated as S),
a content of C_{3-4}-alkanols in the range from 1 to 5000 ppm by weight,
a methanol content in the range from 1 to 5000 ppm by weight,
an ethyl acetate content in the range from 1 to 5000 ppm by weight und
a 3-methyl-1-butanol content in the range from 1 to 5000 ppm by weight.

26. Ethanol according to the preceding claim which has a content of sulfur and/or sulfur-containing organic compounds in the range from 0 to 1 ppm by weight (calculated as S).

27. Ethanol according to claim 25 which has a content of sulfur and/or sulfur-containing organic compounds in the range from 0 to 0.1 ppm by weight (calculated as S).

28. Ethanol according to any of the three preceding claims which has a content of C_{3-4}-alkanols in the range from 5 to 3000 ppm by weight.

29. Ethanol according to any of the four preceding claims which has a methanol content in the range from 5 to 3000 ppm by weight.

30. Ethanol according to any of the five preceding claims which has an ethyl acetate content in the range from 5 to 3000 ppm by weight.

31. Ethanol according to any of the six preceding claims which has a 3-methyl-1-butanol content in the range from 5 to 3000 ppm by weight.